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ABSTRACT

A year-long, social-ecological study assessed a kindergarten classroom setting and the beliefs of 32 kindergarten children, 9 parents, and 2 teachers, for the purpose of illuminating the interactive nature of the person-environment interaction model of the learning environment. Children were from lower- and middle-income Anglo and Hispanic families. Assessment involved multiple methods and analyses. Two of the important findings of the study were that the participants had complex beliefs about learning events and that discordance between the participants' beliefs and the teaching-learning structure persisted throughout the school year. Development of learning beliefs into a typology of personal constructs proved invaluable in uncovering the complexity of learning beliefs and learning events. This report describes the participants; setting; classroom situation; a taxonomy of classroom learning events; classroom observations; participant beliefs; personal construct theory; research instruments; tasks structured by teachers and by children; configuration of groups during learning events; the classroom teaching learning paradigm; the typology of beliefs about learning; differences in construct type between Anglo and Hispanic children; differences between higher- and lower-achieving children; differences in adults', teachers', and children's views about events which occurred in the classroom situation; and implications of the findings for the construction of classroom learning environments. (RH)

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THE CONSTRUCTION OF A LEARNING ENVIRONMENT: A TYPOLOGY OF PERSONAL CONSTRUCTS

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The Construction of a Learning Environment: A Typology of Personal Constructs

Deborah Muscella

Learning in a classroom is a complex enterprise for young children. When students begin their first formal school experience, they enter an environment rich in information about academic tasks and cultural rules. Participation in this setting requires that children adapt to the local norms of the classroom environment so they can acquire information about academic tasks. Children who do not eventually adopt classroom norms are at educational risk (Labov, 1972; McDermott, 1974). There are many reasons that prevent young children from fully participating in the classroom environment; however, of these many factors cultural miscommunication and cognitive dissonance are potent explanations.

Cultural miscommunication begins as an information processing phenomenon (McDermott, 1974). A young child enters school and receives two distinct types of information--academic information and cultural rules about the classroom learning environment. When the cultural rules are vastly different from a child's family learning environment, cultural miscommunication occurs (Brice-Heath, 1982). Children who are unable to resolve this miscommunication experience cognitive dissonance--the discrepancy between what a person believes and what happens in the environment (Festinger, 1957; Brehm & Cohen, 1962). When such discordance occurs, individuals attempt to relieve the dissonance through a change in either their beliefs or the situation (Cofer & Appley, 1966). Young children often resolve the prolonged cognitive dissonance they experience in the classroom by discounting the teacher's information and eventually turning to their peer group for support (Labov, 1972; Philips, 1983). When children use this strategy to resolve dissonance, they begin to "achieve school failure" (McDermott, 1974, p. 87)

Identifying how children resolve discrepancies between their learning beliefs and classroom occurrences is important for several reasons. First, several researchers have discovered that the beliefs which children, parents, and teachers have about learning influence the nature of acquired school information, and perhaps more importantly, differences between beliefs and the learning environment impact school achievement (Brice-Heath, 1983; Labov, 1972; McDermott, 1974; Ogbu, 1974; Philips, 1983). Second, early school experiences pivot student participation in

subsequent learning environments and eventually influence academic success (Brice-Heath, 1983: Weikart, 1983). Finally, there has been a dramatic increase in the number of low income and ethnic and racial minority preschoolers--children who have historically experienced a school failure (Children's Defense Fund, 1985; Committee for Economic Development, 1985; Northeast Midwest Council, 1987). These factors have contributed to a renewed interest in developing effective early childhood programs particularly for the low income and ethnic and racial minority students (Committee for Economic Development, 1985; Northeast Midwest Council 1987). Thus, understanding participant beliefs as they have meaning in the classroom environment and discovering the strategies children use to resolve their belief differences is an important perspective for early education policy issues.

In this research, a person<->environment interaction model captures the complexity of learning beliefs and learning environments to frame the social-ecological study (Figure 1). This conceptual model posits that participants bring a set of beliefs to the classroom setting and through their participation in the classroom alter or sustain these beliefs. Further, the model suggests that students' beliefs about and participation in learning events are mutually influential, and that cognitive dissonance mediates the discordance in beliefs which, if unresolved, may negatively influence school learning.

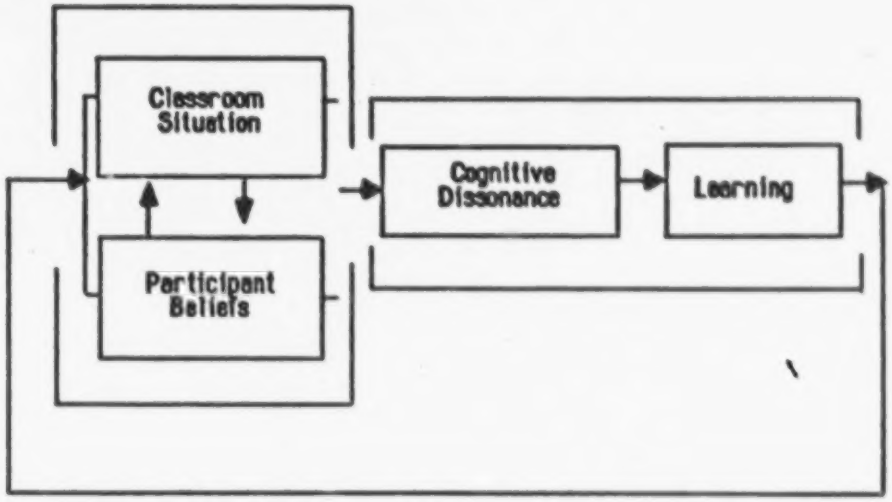

Figure 3. A person<->environment interaction model

To capture the interactive nature of the person<->environment interaction model a year-long, social-ecological study was undertaken. The research was a multi-stage effort in which participant beliefs and the kindergarten classroom setting were assessed throughout the school year through multiple methods and analyses, such as multidimensional scaling, conjoint analysis, a typology of personal constructs, and a case study analysis of the classroom environment (Muscella, 1987). Two of the important findings of this longitudinal investigation were that the participants had complex beliefs about learning events and that discordance between the participants beliefs and the teaching-learning structure persisted throughout the school year. Developing the learning beliefs into a typology of personal constructs proved invaluable in uncovering the complexity of learning beliefs and learning events.

Assessing the Classroom Situation and Learning Beliefs

A common theme in both ecological studies of classroom learning and research in personal construct theory is that beliefs influence learning (Brice-Heath, 1982, 1983; Ogbu, 1974; Salmon & Claire, 1984). Belief systems, the dynamic of actions and interactions in a social setting, are an integral part of a social ecology (Bronfenbrenner, 1979; Moos, 1979, in press; Nystedt, 1983). A social-ecological framework acknowledges that several environmental subsystems influence beliefs and behaviors, and it posits that the beliefs which individuals have about a social setting and their participation in that social setting are mutually influential (Bronfenbrenner, 1979; Moos, 1979, in press). In a classroom learning milieu, this contention would suggest that teachers and children engage in transactions which alter or sustain each other's beliefs and affect the nature of classroom participation.

The Participants and the Setting

Thirty-two kindergarten children, nine parents, and two teachers volunteered to participate in the study. The children were from lower and middle income Anglo and Hispanic families and they were enrolled in kindergarten classes in three ethnically integrated schools in central Texas. Each school had a parallel student racial composition in that each had equivalent numbers of both Hispanic and Anglo children with approximately forty percent of the children Hispanic and sixty

percent Anglo. A few Black children were enrolled in each school. This study sample was then categorized into a larger sample and a smaller, intensive sample.

This larger sample of children from the Jones, Smith, and Northside schools provided information about the learning beliefs of the varying ethnic, economic, and achievement groups. The names of these school and the participants have been changed to protect the confidentiality of the study participants. These schools represented gradients in socioeconomic status. The Jones school drew from a neighborhood composed of mostly lower working class families with the general occupational level of blue collar or clerical workers; Northside was in an upper middle class neighborhood with professional or white collar workers who lived in large single family dwelling units; the Smith school families included mostly lower-middle to middle income families. Table 1 provides gender and ethnic information about the participants.

The Jones kindergarten classroom, a team-taught classroom, served as the site for the intensive sample, and provided an appraisal of the learning beliefs of the parents, the teachers, and children and classroom learning events. The learning beliefs of the Jones children were considered with the larger sample of children, with the adults, and with classroom learning events.

The teachers, who were both Anglo, each had more than ten years of teaching experience at the kindergarten level. Nine parents whose children were enrolled in Jones kindergarten participated in the study. Eight of these parents were mothers, with three of them heading single parent families with their kindergarten child as an only child. The remaining five children lived in two parent families with one or two siblings. In only one family did both the mother and the father participate.

Classroom Situation

A kindergarten classroom is replete with a variety of activities, tasks, and materials which teachers and children use to create classroom learning events. The learning events themselves are arrangements of participants, in a variety of subsettings, participating in activities in the classroom. Possibilities for these learning events might include a small group of five children sitting on the carpet with the teacher completing a math lesson on sets; two children building with blocks in a learning center; or an individual child constructing patterns from logical blocks at a table. The range of possibilities provides an array of learning choices to both the teacher and the children. Evaluating the teacher workplan, photographing classroom scenes, and conducting observations of classroom learning

Table 1

Gender and Ethnicity of Participants

	Number of Students		
	Hispanic	Anglo	Black
Jones School			
boys	2	3	-
girls	1	2	-
Northside school			
boys	2	2	-
girls	2	1	1
Smith school			
boys	6	4	-
girls	2	4	-
Total	15	16	1

events were used to construct a classroom learning events taxonomy and to focus observations of classroom learning events.

Classroom Learning Events Taxonomy

The workplan, the weekly curricular documentation written by the teacher, details lesson goals and objectives, instructional materials, and grouping structures. From a sample of four workplans, the episodes which occurred throughout the day were classified according to the duration and frequency of the activity, the group structure, and the classroom location.

Each of the episodes documented in the lesson plan was photographed with a wide angle lens from the teacher's and children's vantage point. The researcher spent a week in the representative kindergarten classroom during the spring semester preceding the study and photographed over 250 classroom learning events. This photographic sample was categorized into learning events representing each of the activities noted in the workplan. Two trained evaluators selected five representative scenes for each of the lessons. The researcher then showed this selected photographic sample to the teachers and children in the classroom and asked them to describe the scenes. The conversations, photographs, and teacher workplan detailed the events further by the way in which participants were configured, the type of activity which occurred in a particular subsetting, and the actions of the participants during a specific activity. From these data a classroom learning events taxonomy was compiled which focused subsequent observations.

These learning occurrences were categorized as: outdoor play, transition, large and small group instruction with the teacher, children working in dyads or alone on either teacher-assigned or self-selected tasks. Each learning occurrence was detailed further by the activity, classroom subsetting, participant configurations, and actions of the participants, and the learning tasks themselves were delineated into language, cognitive, and motor tasks. As an example, the scene of a large group instructional activity depicts all of the children sitting on the rug (subsetting) with the teacher sitting in a chair facing the group of children (participant configuration). The teacher is holding up (action) a number card (cognitive/language activity) and the children are raising their hands (action) to provide a response.

Observations

Throughout the academic year learning events in the Jones kindergarten were observed in a series of iterative stages. The first observation stage provided an account of the regularly occurring classroom epsiodes. During the second stage the classroom learning events were described and the participation of children during these events was observed. The final observation stage recorded teacher and child-directed learning events.

These observational data were collected in the same way for each of the iterative stages. A catalogue of classroom learning events was compiled; that is, the actions, activities, participant configurations, and classroom subsettings were observed, notated, and described. During the activity period, the focus was on pre-selected individuals participating in targeted activities. The observational notes were transcribed into a prose document.

Classroom Overview. Each learning episode--instructional periods such as the reading sequence--which occurred during the day was observed to obtain a descriptive account of planned instructional activities noted in the teacher workplan and to develop a framework to observe specific classroom learning events. The classroom learning events taxonomy and the teacher workplan focused these initial observations. For example, during daily math instruction the researcher noted that this activity was teacher-directed and occurred with children sitting on the rug. However, on some days the teacher distributed manipulative materials to children and on other days she displayed flash cards. The ten day fall semester observation period accounted for variations in the learning events, documented their regularity, and provided a general description of the classroom episodes.

Classroom Learning Events. Specific classroom learning events were observed to learn about the participation of children during these events. After the initial two week observation period, the researcher spent a half day each week observing in the classroom. The half day sessions were randomized throughout the semester so that an unbiased assessment of the classroom could be obtained. Each of the learning events listed in the taxonomy was observed three times during the fall semester and the comparison of these three observations provided a general description for each learning event.

Eight children in the Jones kindergarten who represented varying achievement levels and ethnic and gender groups were observed during the learning events listed in the taxonomy. Over the course of the fall semester, two

observations of each child in each learning event were made to assess individual participation in varying learning events. These observational data served as a means to evaluate the personal constructs for each of the participants and suggested a focus on teacher and child-directed activities for the final observation phase.

Teacher and Child-Directed Activities. The observations during the fall semester and the personal construct interview data indicated that children preferred activities which they could direct in small groups or by themselves. However, achieving children preferred individual child-directed activities, low achieving children preferred to work with another child, and Hispanic children preferred small group child-directed activities. Teachers who structured classroom learning events, preferred instructional activities which they directed. Both the small group reading instruction sequence and learning center period provided a natural contrast to observe the participants in teacher and child-directed activities.

The reading instruction sequence consisted of small group teacher-directed instruction and two independent activities, each lasting twenty minutes. Independent activities--contract boxes and table work--were selected by the teacher but directed by the children. Several children were scattered on the rug as they worked independently on contract box activities such as pattern blocks or alphabet cards. Table work, typically a worksheet which reinforced a skill or concept, was also independently pursued by children clustered at two tables.

The learning center activity was a weekly thirty minute afternoon event. Learning center activities such as blocks, puppets, art activities, table games, and science, art, and writing centers were selected and directed by children individually, with another child, or in small groups. During a learning center period, the classroom scene was one of multiple activity: groups of children built with blocks, pairs of children played board games, a few children worked on an art activity. The teacher often worked at a small table in the classroom or at her desk at this time. During the second semester the eight Jones children again were observed four times in each of the reading sequence and the learning center activities.

Participant Beliefs

To uncover student, parent, and teacher beliefs about learning, required instruments which captured the important dimensions of the classroom and were

sensitive to the diverse participant groups. Personal construct theory, a clinical procedure effective in eliciting beliefs of both children and adults, was used to tap the beliefs of the participants in the study (Kelly, 1955; Bannister & Maier, 1968). Pictorial stimuli representing classroom learning events structured the personal construct interview tasks. These learning events scenes were developed from the photographic array and the classroom learning events taxonomy.

Personal Construct Theory

Personal construct theory explains and describes how individuals understand the environments in which they live and work (Kelly, 1955). The basic tenet of personal construct theory posits that people formulate hypotheses, make observations, and test and refine their hypotheses to construe a theory about how their world works (Kelly, 1955). An individual's personal construct system evolves from this hypothesis testing and is then altered or sustained through participation in his or her social environment (Kelly, 1955; Nystedt, 1983; Salmon, 1976).

Researchers have demonstrated the clinical adaptability of personal construct elicitation by using a broad range of methods to elicit beliefs (Fransella & Bannister, 1977). For example, actual objects, photographs, cut-out figures, and two and three dimensional objects have been used successfully to elicit the constructs which individuals have about persons, occupations, cognitive tasks, and neighborhoods (Bannister & Maier, 1968; Fransella & Bannister, 1977). Researchers have used variants of these personal construct elicitation approaches successfully with children and mentally disabled persons to learn about a variety of aspects of their lives. Baillie-Grohman (1975) used mime as a way to learn what deaf children thought about learning in school and Barton, Walton, and Rowe (1976) showed mentally retarded persons stand-up cut-outs to learn about the constructs they had about important persons in their lives. Bannister (cited in Fransella & Bannister, 1977), to learn more about how children with emotional disorders perceived learning tasks, showed them a series of photographs of a boy completing a puzzle.

Salmon (1976) successfully elicited constructs from preschool children by having them group figures of persons into similarity groups. In personal construct interviews with young children, she presents them with figures of people representing their parents, teachers, siblings, and friends, and then uses a clinical approach in which children talk about these figures. For example, a child selects a figure of a woman, calls her Mother, and says, "She helps me." The clinician then asks the child to select other persons from the remaining figures who help the child

In this way the clinician learns about the child's construct for help. When the child has completed the personal construct interview tasks, the clinician evaluates the child's constructions of family relationships and friendship patterns. The adaptability of personal construct elicitation instruments and procedures and the availability of several types of suitable analyses makes personal construct theory amenable to uncovering the beliefs of diverse groups of adults and children.

Instruments

Classroom learning events scenes, a set of ten black and white artist's renderings of the classroom learning environment, were used to elicit the personal constructs. These personal construct pictorial scenes were a stratified random sample of the learning events represented in the 250 photograph sample. Two photographs representing the six learning events classified in the taxonomy were selected and then translated into 8 x 10 inch black and white pen and ink drawings. Figure 2 contains reductions of these drawings.

The children, parents, and teachers all completed the same tasks with the pictorial stimuli. In an individual thirty to forty-five minute interview with the researcher, each respondent sorted the set of personal construct drawings, provided descriptions for their groupings, and compared descriptors of classroom learning events with the personal construct pictures. Table 3 shows the respondent groups and their respective interview schedules.

The tasks to elicit the personal constructs required nonverbal sorting of the personal construct pictorial stimuli (Figure 2) and verbal descriptions of the resulting sorts. As a warm-up activity, the researcher showed the respondent the array of ten pictures and asked him or her to select pictures one at a time and to describe each. The respondent was then asked to place the ten pictures into similarity groups . Once the respondent had placed the pictures into groups, the researcher pointed out one group at a time and asked what was similar about the pictures in the group. Next the researcher asked the respondent which picture in the group most represented that particular group. Finally the researcher asked the respondent to select a picture which was different from the representative group picture. As an illustrative example, a teacher described a similarity group of pictorial stimuli representing teacher instructional tasks (Figure 2: pictures 1,9) as the teacher interacting with the children. She selected the small group instruction scene (picture 1) as most representative because the teacher interacts with

individual children more frequently. The outdoor scene on the jungle gym (picture 8), having fun with others, was viewed as the opposite of this group.

An Analysis of Learning Beliefs and Learning Events

The classroom infrastructure--the underlying classroom structure which informs the curriculum and directs instruction--was used in the analysis of the classroom teaching and learning enterprise (Philips, 1983). *Task structures* were the participants' who prepared and directed learning events, and *participant structure* was the way in which children and teachers were configured during learning events. The classroom observational data were then analyzed by evaluating the task and participant structures for each of the classroom learning events. From these, analyses patterns in the teaching learning enterprise were uncovered and a case study of the classroom learning events was compiled (Denzin, 1970; Pelto & Pelto, 1979).

Task Structure

Task structure was dichotomous in that classroom learning events were either teacher or child structured. Most of the tasks in the classroom were structured by the teacher with large and small group teacher-directed activities the primary type. In such activities children did not direct or interpret any portion of the activity. Teachers gave procedural information, reprimanded the class, and presented academic concepts to the entire group. Teachers ascertained the children's understanding of the information by asking the group to respond in unison to a question or by calling on individual children to answer. Children were required to raise their hands to ask or to answer questions.

Individual practice tasks which occurred during the reading instruction sequence were also structured by the teacher. These skill practice activities included table work--a specific skill reinforcement worksheet--and contract boxes--games, puzzles, or tracing activities--which were prepared by the teachers in advance. During individual practice children were directed to work alone while the teacher directed another reading group. Although children did not structure these individual practice tasks, they interpreted these activities by talking with a nearby child as they worked alone or actually working with another child on the task.

Child-structured activities were characterized by the diversity of the task and participant structure. Learning centers were a special case of child-structured activities as they were prepared by the teacher and had specific requirements for

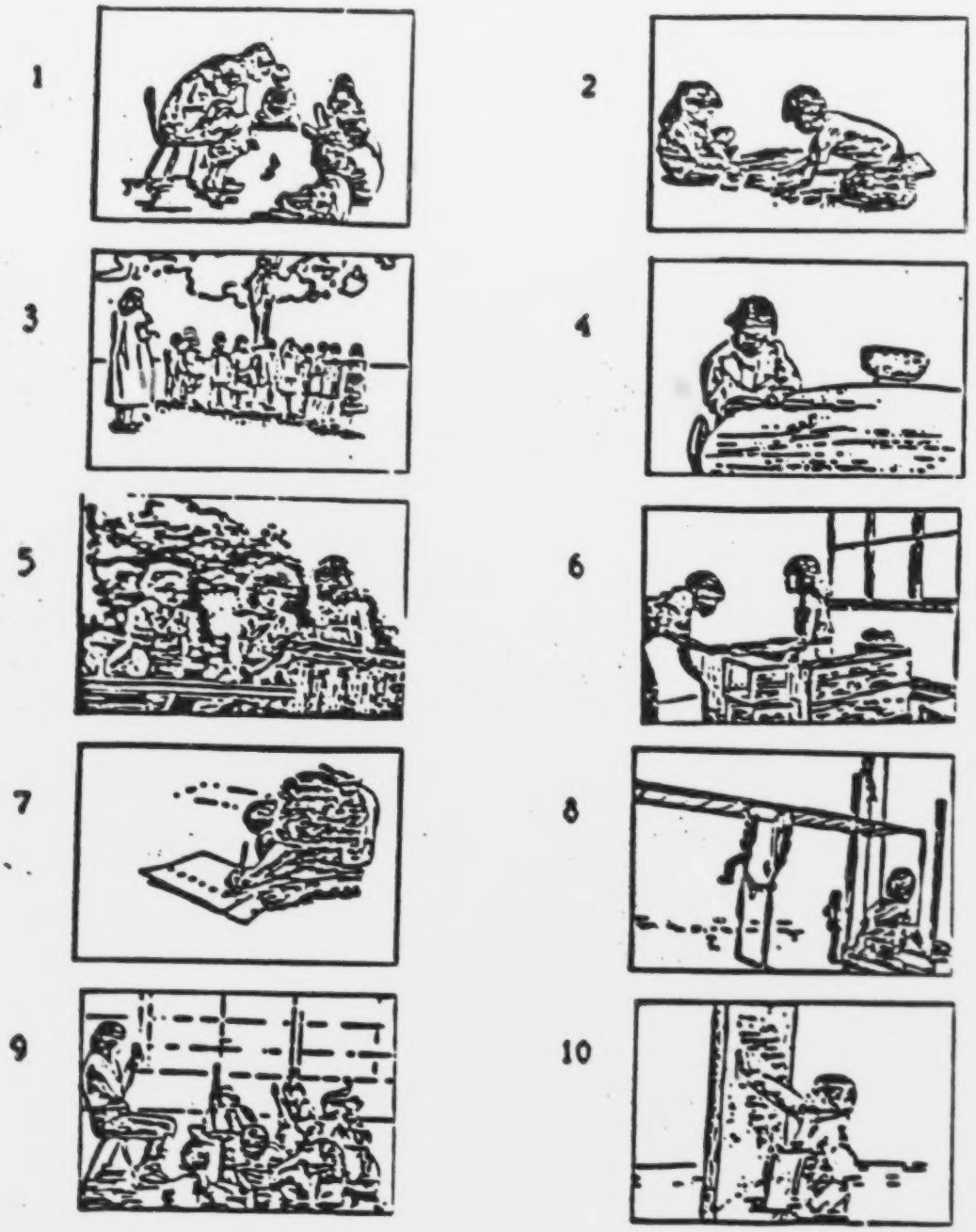

Figure 2. Personal construct elicitation pictorial stimuli.

Table 3

Respondent Groups and Interview Schedules

Respondent Group	Interview Period
Jones Parents, Teachers, Children	Fall
Jones Children	Fall and Spring
Jones Teachers	Fall and Spring
Smith, Northside, Jones Children	Spring
Hispanic and Anglo Children	Spring
Achieving and Low-Achieving Children	Spring

completion, but were directed and interpreted by children. During learning centers children engaged in construction, sociodramatic play, art, language, or logico-mathematical tasks either individually or with another child. Infrequently chilidren worked on a project by themselves. Outdoor play was guided by the playground equipment available to the children. Swings often resulted in pairs of children pushing each other, while climbing activities or using the sliding board were usually pursued individually by children. Small groups of children played tag or built roads in the sand. During outdoor play teachers monitored the activity as they stood on the periphery of the play area. Their interactions with children during child-directed activities were confined to reminders about classroom rules and safe play behaviors.

Participant Structure

Participant structure was the configuration of groups during learning events. Four major structures were noted for participants: large and small groups, individual child, and child dyads. Large group activities typically took place with children sitting around the perimeter of the rug while the teacher directed the activity from the rug's upper edge. Large group activities served many purposes. Large group instruction began the day's routine activities; they were instructional in that the teachers presented math, social studies, and science lessons to an entire group of children; they organized transitions between activities such as getting ready for lunch or outdoor play; and they structured the rewards and reprimands of the assertive discipline program, in that at the end of a day teachers publicly awarded stars or stickers to children who had followed classroom rules and reprimanded those children who had not. The conversation pattern during large group activities was unidirectional in that teachers typically spoke to the entire group. Infrequently the teacher would ask a question and most children in the group would answer together.

A small group *participant structure* in the classroom was one of two types: the teacher and several children or several children, but instances of either were infrequent. The only instance when the teacher and children worked in a small group was during reading instruction. For a twenty minute period the teacher sat with the five or six children in the group at a small round table. The general framework for teacher-directed small groups was a pattern of information delivered by the teacher to the entire group followed by the oral practice of individual children.

Children directed small groups only during learning centers and outdoor play, and such small groups were limited to a few activities. A small group was the usual participant structure for the block and home center. Three, four, or five children worked collectively to build roads, buildings, and houses with blocks, or recreate scenes from family life. Playing tag and building in the sand during outdoor play required several children; however, these games were of short duration and the participants drifted in and out of the game. Thus, although the participant structures might remain constant, the participants themselves changed frequently.

The third type of *participant structure* was the individual child; however, few children worked exclusively by themselves. In both learning centers and outdoor play an individual child worked alone on a construction task such as making objects with clay or building in the sand for a period of about ten minutes. When the task was finished, the child usually joined one other child or a small group of children who were engaged in another activity. Another pattern noted during table work and contract boxes was that of individual children sitting in close proximity to other children and making periodic task or non-task comments to these surrounding children.

The fourth type of *participant structure* was child dyads. When children worked together, it was most often in pairs during learning centers and outdoor play and during contract box work. Children were observed working in pairs on a variety of activities such as puzzles, games, puppets, books, and small building blocks. Pairs of children were often exclusionary; that is, newcomers were not included. However, one of the members of the dyad could leave the activity and another child join. This was a rare instance, however. Most often the participant structure, child dyad, was a mutual interaction between two children surrounding a task.

Classroom Teaching Learning Paradigm

The primary *participant structure* of the classroom was a dichotomous pattern which was dictated by one *task structure*. Teacher-structured tasks were implemented primarily in two ways; that is, teachers instructed children in groups and then children, working alone, practiced the skills which had been taught. Large group instruction assumed an important role in disseminating information both about the rules of the classroom content and and the academic curriculum. In this particular paradigm the teacher-directed large group structure was uniform; that is, the teacher talked to the entire group and called on individual children to give

answers, and generally few opportunities were available for children to ask questions or make comments.

Individual practice of academic skills was teacher-structured. The explicit rule during instruction and practice was that children would listen and work quietly by themselves. This rule remained the classroom norm when teacher-directed instruction occurred, but the norm changed during individual practice. Children often talked with other children sitting nearby about task or non-task topics, and oftentimes children discarded their task and worked with another child on an activity. A minor perturbation was for children to work on the task themselves but make task and non-task comments to nearby children. Children interpreted teacher-structured individual child tasks by altering the participant structure to that of a child dyad.

Other task and participant structures were ancillary to the general teaching-learning paradigm of teacher-directed instruction followed by individual practice. Child-structured activities such as learning centers or outdoor play which provided teaching-learning opportunities for children through the exploration of materials and activities were a minor aspect, and in neither of these child-directed activites did teachers assume a pedagogical role with the children.

Beliefs about Learning

A typology was developed to appraise the specific aspects of learning events which had saliency for the diverse participant groups (Greenberg, 1970; Harman, 1975; Lehman, 1978; Upensky, 1968). Not only was the typology useful in interpreting other analyses, such as multidimensional scaling and conjoint analyses, but it was instrumental in considering the participants beliefs about learning with the learning events as they occurred in the classroom (Muscella, 1987). The development of the typology was a comparison of the classroom learning events pictorial scenes with the learning belief personal constructs, which then isolated elements of the participants' belief systems.

A series of stages was used to develop the construct typology. The personal constructs were considered in two ways: they were classified with reference to the pictorial scenes and as separate entities. This dual classification system allowed the pictures to illuminate the elicited constructs. Constructs were first classified at the individual respondent level. This preliminary framework then was used to classify the learning environment constructs of each respondent groups (Table 3). A complex classification of five construct types emerged, and four of these types had

several subcategories (Table3). The classroom learning events pictorial scenes were then considered with the construct types for each of the respondent groups. Reliability was assessed by classifying all respondent groups again two days later. Any discrepancies noted were then submitted to additional ratings until there was consistency among the ratings. No more than two classifications were required to achieve 90% reliability rating for any respondent group.

Jones Parents, Teachers, and Children

> All school activities are learning exercises. Anything a child does is some form of learning. *Parent*
>
> The teacher must provide different activities in different settings to meet the different learning levels of the children *Teacher*
>
> The teacher helps you and you know how to learn so you'll go to first grade. *Child*

A summary of the contruct types for parents, teachers and children is found in Tables 4 and 5. Parents characterized classroom learning events primarily as *learning activities*-what children did during a learning event, *group structure*--who participated in a learning activity, and *task outcome*--what children learned from the activity. When parents considered the *learning activities* of the classroom, they described them most often as learning play--creating ideas or games alone or with friends, school tasks--counting, writing, ABC order, and construction--building large or small structures with blocks. Parents typically considered the *group structure* of learning events as either teacher-directed or small groups or pairs of children working together. As parents evaluated what children learned during classroom learning events--the *task outcome*--they discussed interaction, rules and procedures, and teaching and learning about equally. When assessing the importance of teaching and learning activities in the classroom, parents attributed considerably more importance to those tasks which were directed by the teacher than those which children directed.

Teachers described the major aspects of classroom learning events much like parents. They considered the *learning activity, group structure*, and *task outcome* of events. But teachers also included *task structure*-who planned and directed the activity, and they viewed these characteristics of learning events very

Table 3

Description of Construct Types

Construct Type	Description	Representative Constructs
Learning Activity	planned learning events	
learning play	a task without teacher direction	free play center learning writing A's
school tasks doing work	teacher-structured	ABC order activity to teach
	specific skills	reading readiness
construction	design and building objects from free-form materials	making something building a structure
transition	structured change from learning event to another	lining up standing in line
Group Structure	the participant structure for a learning event	
teacher-directed	the teacher structures and directs from several children to the entire class	classroom experience with the teacher small group with the teacher
small groups	a group of children who orchestrate a task	quiet play in small groups children doing things without the teacher
dyads	two children engaged in a task together	learning between two people pairing off to work on a project
individual child	a child engaged in a task alone	individual working without the teacher work in which they go off by themselves

Task Structure	the individual(s) who plan operationalize the form and function of a learning event	
teacher-structured	the teacher is the planner of the learning event	structured learning not at all self-directed teacher giving information
child-structured	a child or children plan the learning event	learning experience on their own self-teaching
unstructured	lack of visible preplanning by any of the classroom participants	not at all structured being able to do what they want without supervision
Task Outcome	the accomplished goal or derived benefit of a learning event	
cognitive	learning which increases such skills as problem solving but is not tied to a specific skill	try to figure something out exploratory mental activity
fun	a task which is mostly pleasurable and in which the participants are viewed as happy	free-spirited doing what feels good children look happy
levels of interaction	the degree of involvement with other participants during a learning activity	playing and sharing interacting with each other
rules and procedures	the parameters for the behavior of the participants to complete tasks or to participate in learning events	raising hands because you want to talk certain rules teacher says to get in a straight line
teaching and learning	the outcome of planned classroom learning events especially academic tasks	learning skills part of teaching and learning
Location	physical space of an event	outside or inside learning

Table 4

Percentage of Construct Types to Total Number of Elicited Constructs

	Percentage %		
	Parents	Teachers	Children
Learning activity	23	32	72
Group structure	14	17	0
Task Structure	7	18	0
Task Outcome	51	30	24
Location	5	3	1

	Jones Children	
	October	February
Learning activity	72	49
Group structure	3	13
Task structure	-	-
Task outcome	24	28
Location	1	10

Percentage %

	Jones	Northside	Smith
Learning activity	49	62	49
Group structure	13	5	10
Task structure	-	-	-
Task outcome	28	29	29
Location	10	4	12

	Minority	Non-minority
Learning activity	60	48
Group structure	6	11
Task structure	—	—
Task outcome	25	31
Location	9	10

	Achieving	Non-Achieving
Learning activity	57	53
Task structure	11	2
Task structure	—	—
Task outcome	21	41
Location	11	4

differently from parents. Teachers considered *learning activities* almost exclusively as school tasks which they described as reading readiness, learning numbers, counting sets, and language arts. When they considered learning play, they attended to children who played freely outdoors without teacher direction. In assessing the *group structure* teachers referred only to teacher-directed or an individual child practicing a skill, but teacher-directed activities assumed prominence. Their consideration of the *task structure* mirrored that of the structure of learning groups. Teachers considered learning tasks which they structured quite important. Learning activities which had potentially cognitive outcomes were mainly those activities which allowed children to explore alone or with another child. Outdoor play allowed children to have fun. When teachers considered interaction as the outcome of a task, children and teachers were engaged in a directed learning activity. Despite the differences between how parents and teachers described classroom learning events, teachers were most similar to parents in the importance they ascribed to learning events. Teachers viewed learning events in which they instructed children as more important than those which children directed.

Children were dichotomous in their consideration of classroom learning events in the fall semester. They described either the *learning activity* or the *task outcome* of classroom events. Children described learning activities as learning play, school tasks, construction, or transition; however, they focused mostly on learning play and school tasks both of which received about equal attention. Children considered teacher-directed, learning center, individual practice, and outdoor play activities as both learning play and school tasks. Their commentary about the learning events illustrates this similarity. Writing A's was described as playing some and outdoor climbing on the jungle gym was described as hard work. Listening to the teacher and building with blocks were both described by children as playing some in school.

When children evaluated the *outcome of tasks*, they were more preoccupied with rules and procedures. For children small group teaching or outdoor play afforded opportunities to interact with the teacher and friends. Rules and

Table 5

Percentage of the Construct Types for Jones Parents, Teachers, and Children

	Percentages %		
	Parents	Teachers	Children
Learning activity			
Learning play	49	7	33
School tasks	30	93	40
Construction	18	-	14
Transition	3	-	12
Group structure			
Teacher directed	40	80	-
Small groups	26	-	-
Dyads	21	-	-
Individual child	9	20	-
Task structure			
teacher-structured	34	88	-
child-structured	22	12	-
unstructured	44	-	-
Task outcome			
Cognitive	11	28	-
Fun	17	28	-
Interaction	26	28	-
Rules/procedures	25	-	-
Teaching/learning	21	14	-

procedures were required by the teachers and typically described the correct behavior such as standing in line quietly or raising your hand to tell an answer. Children attended to those learning activities which they could structure and direct much more than tasks which were in large groups directed by the teacher.

Jones, Smith, and Northside Children

> Our teacher helps us with these and when she asks a question, we raise our hands if we know a number or answer. *Jones Child*
>
> They're in a circle with their teacher and their listening to their teacher and doing stuff. *Smith Child*
>
> They're sitting down and talking to each other. What should we do today. Maybe play some games. *Northside Child*

There was little difference among the five categories of construct types for the children from the Jones, Smith, and Northside schools (Table 6). The exception was that Northside children had somewhat more constructs typed as *learning activities*. The major differences among these groups were in the *group structure* categories and the pictorial scenes which children selected to represent constructs describing school tasks, a category of learning activities.

School tasks were pictorially represented by the Jones children with scenes of individual children completing academic tasks such as writing A's or hanging words on a chart and the large group outdoor play scene. The Jones children used generalized terms to describe these scenes, such as "they're writing", "doing work", and "reading." The Northside and Smith children had a more diversified selection of scenes to represent the constructs which they used to describe school tasks. They selected teacher directed, individual child, and dyad scenes, and they provided more specific descriptions of these scenes, such as "we look at dinosaurs", "practicing your numbers", and "practicing writing C's, A's, and B's."

Group structure also differentiated the children from the three schools. The children in the Jones and Smith schools used constructs describing learning events as teacher directed, small groups, dyads, and individual child. The Northside children, however, described the group structure of learning events only as teacher- directed or small groups. The Smith and Northside children most

Table 6

Percentage of the Construct Types for Jones, Smith, and Northside Children

	Percentages %		
	Jones	Northside	Smith
Learning activity			
Learning play	48	38	40
School tasks	22	32	23
Construction	14	15	15
Transition	16	15	22
Group structure			
Teacher directed	13	66	63
Small groups	25	34	9
Dyads	25	-	10
Individual child	37	-	18
Task structure			
Teacher-structured	-	-	-
Child structured	-	-	-
Individual child	-	-	-
Task outcome			
Cognitive	11	5	3
Fun	-	5	3
Interaction	27	17	26
Rules/procedures	46	56	52
Teaching/learning	16	17	16

frequently described constructs as teacher directed, but this was used least frequently by the Jones children. Instead the Jones children most often described the group structure of learning scenes in terms of the individual child. The pictorial scenes which represented the group structure constructs were predictable for each of the groups: teacher-directed constructs represented the scenes in which the teacher instructed groups of children; individual child scenes represented constructs about individual children. The Jones and the Smith children were more specific in their descriptions of the group structure of learning events than the Northside children. They described these as: "they're all working by themselves", "the reading group", and "working in school without the teacher".

Hispanic and Anglo Children

> They're all talking to each other about games and stuff. *Hispanic Child*

> When you play this game, you have to figure it out by yourself. that's what I like very much about school. *Anglo Child*

Minority and non-minority students' construct type differences were distinguished by *learning activities, task outcome,* and *group structure* (Table 7). Minority children had somewhat more constructs which were classified as *learning activities* and slightly less of their constructs were classified as *task outcome.* Differences between these two student groups were also found in group structure. The scenes representing the construct types highlighted the distinctions between minority and non-minority children.

Learning activities constructs differed in two ways when the minority and non-minority groups were compared. More of the minority students' constructs were classified as learning play. However, the pictorial stimuli which represented the learning play and school tasks categories suggest differences between the constructs of work and play for each of these student groups. Minority children represented both learning play and school task constructs with a wide array of teacher-directed, individual child, learning center, and outdoor play scenes. Non-minority children were more circumscribed. Large group teacher-directed instruction and individual children completing academic tasks were scenes which non-minority children selected for school task constructs; whereas, outdoor play and learning center activities represented learning play.

Group structure constructs categorized as teacher-directed and individual child accounted for almost 90% percent of the minority children's constructs with

the teacher-directed category most frequent. Representing minority students' group structure constructs were typically academic teaching and learning scenes. Non-minority students were more diversified in their constructs which described *group structure* and selected both typical academic task scenes and free play and learning center tasks to represent their constructs about group structure.

Task outcome pointed to some differences between minority and non-minority students. Minority students had slightly more constructs classified as interaction and rules/procedures than non-minority students. The scenes which represented the constructs for these two categories also indicated differences between the groups. The small group teacher instruction scene, a learning center activity, and the small group outdoor play scene represented the minority children's interaction constructs. Non-minority children represented their interaction constructs only with the outdoor play scenes. When comparing the scenes for rules and procedures non-minority children selected only scenes typical of directed teaching and individual student practice, and transition times. Minority children, however, selected outdoor play and learning center activities in addition to teacher-directed instruction and transition scenes. For teaching and learning, minority children selected only the two large group teacher- directed scenes; whereas, non-minority children selected both teacher- directed instruction and individual practice scenes.

Jones Children in the Fall and Spring

> Play is fun. That's how you make friends and stuff. *Fall Semester*
>
> The teacher is telling them something...telling them to be quiet. *Spring semester*

Some differences were found in the classification of the construct types for each semester for the Jones children. Most notably children described constructs as learning activities much more often in the fall semester than in the spring, and group structure assumed more importance in the spring semester. Table 8 provides a syposis of the typology for the Jones children's constructs.

Learning activities specifically the learning play and school tasks categories, were quite different in the fall and the spring semesters. In the fall semester, more of the Jones children's constructs were classified as school tasks than learning play. However, in the spring semester this pattern was reversed in

Table 7

Percentage of the Construct Types for the Hispanic and Anglo Children

	Percentages % Children	
	Hispanic	Anglo
Learning activity		
Learning play	45	35
School tasks	32	28
Construction	5	22
Transition	18	15
Group structure		
Teacher directed	57	39
Small groups	14	23
Dyads	—	15
Individual child	29	23
Task structure		
Teacher-structured	-	-
Child structured	-	-
Individual child	-	-
Task outcome		
Cognitive	3	5
Fun	—	5
Interaction	30	21
Rules/procedures	50	43
Teaching/learning	17	26

Table 8

Percentage of the Construct Types for the Jones Children in the Fall and Spring

	Percentages % Jones Children	
	October	February
Learning activity		
Learning play	35	48
School tasks	40	22
Construction	13	14
Transition	12	16
Group structure		
Teacher-directed	-	13
Small groups	-	25
Dyads	-	25
Individual child	-	37
Task structure		
Teacher-structured	-	-
Child structured	-	-
Individual child	-	-
Task outcome		
Cognitive	-	11
Fun	-	-
Interaction	43	27
Rules/procedures	57	46
teaching/learning	-	16

that children gave considerably more attention to learning play than school tasks. This finding is counter to what one might hypothesize; that is, it might be expected that as children became acclimated to school they would attend more to school tasks. The picture scenes representing school tasks for both semesters offer an explanation for this change. In the fall semester, all scenes, except the large group outdoor play scene represented the school task constructs. In the spring only the individual child completing academic tasks and the large group outdoor play scenes were selected. It seems that students learned that the connotation of a school task was circumscribed to academic activities. They also appeared to have learned that outdoor play was a designated time in which they could direct a school activity.

Group structure was not found among any of the Jones children's constructs during the fall semeter. In the spring their constructs were classified in all of the categories of group structure. The individual child category classified the group structure constructs most often and the teacher-directed scenes least often. It is interesting to note that the teaching-learning paradigm in the Jones classroom was one of large group instruction followed by individual practice. It may well be that the group structures which children could direct continued to have more saliency for them.

Achieving and Low Achieving Children

> When you're in the green center, you take the pen and paper and write very carefully by yourself. *Achieving Child*

> They're really having fun. The teacher says, "You can quit centers." Kids say, "We never want to leave centers." Centers are something kindergarten kids do and they say "Boo-hoo" when the lights go out. *Low achieving Child*

The constructs which children used to describe classroom learning events distinguished achieving andlow-achievingstudents (Table 9). Although more than half the constructs of both achieving andlow-achievingchildren were classified as *learning activities*; learning play and school tasks were construed differently by the two groups. The most notable distinction was in each group's construal of the *outcome of tasks* particularly the rules and procedures associated with school tasks. low-achievingchildren made many more references to the rules and procedures required for classroom activities than did their non-minority counterparts.

Table 9

Percentage of the Construct Types for the Achieving and Low-Achieving Children

	Percentage % Children	
	Achieving	Low-Achieving
Learning activity		
Learning play	43	39
School tasks	38	31
Construction	4	19
Transition	15	11
Group structure		
Teacher directed	37	—
Small groups	13	100
Dyads	13	—
Individual child	38	—
Task structure		
Teacher-structured	-	-
Child structured	-	-
Individual child	-	-
Task outcome		
Cognitive	12	—
Fun	—	5
Interaction	11	30
Rules/procedures	41	60
Teaching/learning	35	5

Achieving children's constructs which described learning play were more specific--"playing with her toys", "they're playing with each other", and "climbing the monkey bars." low-achievingchildren used more generalized constructs--"playing", "play", "playing blocks." Both groups, however, represented learning play with child dyad, individual child, outdoor play, and transition scenes. The exception was small group teacher instruction--only achieving children selected this scene as representative of learning play.

Scenes of children completing school tasks by themselves were the most popular selections of achieving children's constructs.low-achievingchildren also selected these individual task practice scenes but with much less frequency. Both groups described the school tasks as "she's writing", "writing letters", "drawing A's", and "practicing writing C's, A's, and B's". *Task outcome* was the most distinguishing feature between the achieving andlow-achievingchildren: for achievers, 21% of their total constructs described outcome, but for non-achievers, 41% of their constructs were classified as task outcome. Although both groups attended most often to rules and procedures , the non-achievers were clearly preoccupied with the requirements of learning events (achievers-41% and non-achievers-60%). Rules and procedures for achievers were represented by the teacher-directed scenes , large group transition, and the individual child building with blocks. They described these as "you hear two bells for a fire drill", and "you're not supposed to play these without a helper", and "she's holding up a number and everyone is raising a hand except one girl." For non-achievers, the most frequently selected scenes for rules and procedures were teacher-dirteced activities which they described as "everyday they get a star or a sticker"; "they're raising their hands when they want to talk"; "this little boy didn't do his work so he had to start over again."

The Classroom and the Participants

Participants had different views about the events which occurred in the classroom situation. The belief patterns of both parents and teachers were closely aligned; that is, school learning was viewed primarily a teacher-directed enterprise with some opportunity for children to explore, construct, and play. Children attended most to learning activities such as learning centers or individual practice tasks. When they considered the activities which the teacher directed they gave considerable attention to the rules associated with the task. It might be hypothesized that the differences between the children's beliefs and the classroom

situation would cause discordance. The corollary then would assume that either changes in the children's beliefs or the situation would be required not only to resolve the dissonance but to maximize the learning and achievement of the children. The preference differences of the achievement, ethnic, and economic groups and their participation during learning events suggests discordance. For example, Hispanic children typically worked together in small cooperative groups to complete learning tasks; while achieving and Anglo children most often worked alone or with one other child. However, the cooperative learning structures were largely unavailable The following vignettes illustrate these differences among participant groups.

Individual Practice

Reading skills practice requires completing a worksheet. Danny, an Anglo, achieving child, sits at the table with four other children from his reading group. Another small group of children is reading with Ms. Rogers and several other children are working by themselves on the rug. Danny takes a worksheet from the center of the table. He looks at it for a moment and then takes a pencil from the tin in the center of the table. He looks at the first block on the page--a picture of a bike with B_K E printed underneath. Danny leans over the page and writes I. He continues to lean over his page, look at the pictures, and fill in the missing letters. Timmy tells Jon a story and both start to laugh. Danny looks up and watches for a moment and smiles. He puts his pencil back and takes a crayon from the box and colors the bike red. The lights go out . Danny runs to his cubby, puts his completed worksheet inside, and runs to line up for outdoor play.

Will, an achieving, Hispanic child, collects materials to complete his table work during the reading instruction sequence. He brings a worksheet, scissors, and paste to the table and sits between Liz and Stevie. He begins to cut out pictures from the bottom of the page--a pig, pot, ball, and bat. He lines these cut-outs in front of him. He looks at Liz as she holds her cut-out picture of the ball. Will shows her where to paste it. He then looks at Stevie who has pasted the picture of the bat over the word pot and shows him the word bat.

Will: See, this is bat. It begins with B.

Will begins to paste his pictures over the words. He looks at Liz who is now coloring her pot black and comments, "Ugly." Ms. Simon tells the children to go to their next group. Will runs to his cubby and puts away his worksheet. He finds his contract box and takes it to the rug and sits next to Liz and Stevie.

Table work for Sammy's group, a low achieving Anglo child, required that children cut out pictures beginning with the letter L and K and then paste the picture next to either an L or a K. Sammy brought a worksheet to the table, took scissors from the tray, and began to cut around the shapes, not cutting on the outline of the picture, but approximating the shape. When he had cut out all six pictures, he put paste on the page next to the letter K. He then pasted the picture of the lamb next to it. Next he took a picture of a lamp and pasted that next to a K. He then looked at Joe's paper and looked back at his own. Sammy began to pull the pictures of the lamb and lamp from the page. He placed these next to the letter K. He looked again at Joe's paper and selected the picture of the lemon and pasted it next to L, as Joe had done. He completed each item on his worksheet by covertly checking his work with Joe's. Ms. Rogers signaled for the groups to change.

Rosie, a low achieving Hispanic child, began her table work--a page of pictures with a picture of a cat and the letter A at the top of the page. She circled all the words that had vowel sounds like that found in the word cat. She looked at the word and said it out loud. When she nodded her head yes, she circled the word, but when she shook her head no, she put an x through the word. She stopped at the word cake.

Rosie: Cake, cake, cat. I don't know. Suzie, do you know about cake?

Suzie: No.

Rosie circled cake. She finished the paper and then took it to Ms. Rogers to check.

Ms. R: No, Rosie, this is not like cat. Cake does not sound like cat. Please correct this.

Rosie returned to the table and erased the circle around the picture of the cake and drew an x through it. As the lights went out she quickly took the paper to Ms. Rogers who nooded her head and smiled. Rosie walked to her cubby and then to line saying, "Cake-cat I don't get it.

Child-Directed Activities

It was learning center time. Danny went to the math center and took a large box of multi-attribute blocks from the shelf and sat on the rug near Jenny and Tim who were building a house with large wooden blocks. Danny spread out his blocks before him and began to separate them by color--red, blue, and yellow. When he finished sorting by color, he looked at the yellow group. After a minute, he began to

organize this set into groups of circles, squares, rectangles, and triangles. Jenny looked out at Danny from the window of the recently built house.

Jenny: Come see our new house, Danny.

Danny: I can't. I'm working. Hey, did you know there are these kinds of shapes here?

Danny returns to his task and finishes sorting the red and blue blocks into shapes. He stands and knocks on the door of the house. Jenny answers.

Danny: Can you come play? We can build some blocks.

Jenny: Okay. Tim, I'm going outside.

Jenny and Danny sit on the rug in front of the pattern blocks. The three decide to build a little traingle house of three different colors. The building begins with each child taking a turn.

Will cuts, colors, and pastes at the art center. He colors a ghost and then cuts it out. A stick is pasted to the colored ghost--it is now a puppet. Will runs to the puppet center where Joe is producing a puppet show with Jen.

Will: Boo

Joe: (speaking through a large bear puppet) Oh no. The ghost is here. Wait a minute. Are you here for Trick or Treat? Do a trick.

Will: (The puppet starts dancing)

Joe: Okay here's some candy. Good-bye.

Sammy, a low achieving Anglo child, selected form puzzles during learning centers. He took the box to the periphery of the rug far away from the children who also worked on tasks from their contract boxes. Sammy took the stack of rubber squares from the box. He pushed a shape from the center of each square and stacked them. When he had pushed each of the shapes from the square, he took a star shape from the top of the pile. He then looked through each of the empty squares. When he reached the square with the star outline, he inserted the star into the form and placed the completed puzzle in the box. Next came a trapezoid. He looked through the puzzle outline three times and then put the trapezoid to the side. The next shape was an isoceles triangle. He again searched the squares several times, but did not locate the form. He put the form aside. Sammy took a square with a missing circle and flipped through the stack of forms until he found the circle which he quickly put into the square. As he looked through the squares again, the lights went out and Sammy stashed the puzzle pieces in the box and returned the box to the shelf. He walked to line and waited to go outside.

Rosie and Suzie sit on the rug in front of the flannel board easel and take turns making sets of objects to match numbers. Rosie puts a 5 on the board and then Suzie puts stars next to the number, counting each aloud until she reaches 5.

Rosie: Okay, that's right. Now my turn. You put up a number.

Suzie nods her head and puts up a 7. She watches as Rosie selects hearts and places them next to the number.

Rosie and Suzie: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Rosie: Yep. Twelve altogether.

The lights go out and children begin to clean up their center areas. They line up to go outdoors for the afternoon play period. After half an hour outdoors, the children and teachers enter the room to conclude the day.

The Classroom Learning Environment

The varying developmental levels of young children, their rapid cognitive growth during childhood, and differences in cultural-familial learning settings argue for diverse learning environments with varying task and participant structures (Brice-Heath, 1982; Cowan, 1979; Gardner, 1983; Phillips, 1983). Several authors are persuasive when they contend that school learning environments should be multiform (Hunt, 1975; Joyce & Weil, 1972; Marshall & Weinstein, 1984). For example, Hunt (1975) proposes that maximal classroom learning environments offer several learning structures. He suggests that the conceptual and developmental levels and learning styles of individuals should dictate the structure of the learning environment with the goal of schooling to develop independent learners. Other researchers suggest that learning environments can offer several teaching and learning structures to accomodate the needs of most students (Joyce & Weil, 1972; Marshall & Weinstein, 1984). Finally, children seem to learn more and like school better when they can make choices and have some measure of control over thier environment (Epstein, 1981; Moos, in press).

The teaching-learning paradigm adopted in the Jones classroom did not have these qualities--the structure was uniform. Recall the scenes in the Jones classroom. Will worked cooperatively with Liz and Stevie during table work, and although they did not follow the classroom rule of working alone, their cooperative efforts resulted in all three children completing the work correctly. Danny, on the other hand, followed the classroom rules and worked quite successfully by himself. However, when Sammy and Rosie worked alone, they did not master the sound-letter concepts required of the independent task. Some children like Danny may come to

school with learning beliefs and learning experiences which were compatible with the classroom teaching-learning structure. The family learning environments and/or developmental levels of other children like Will and Sammy may be quite different with the classroom teaching-learning model. Sole reliance on this teaching-learning model--listening to the teacher and practicing alone--seems inadequate to meet the diverse needs of students.

Considering the participant and task structures of the classroom suggests an environmental disjoint for the Hispanic, low income, and low-achieving children. For example, low-achieving children preferred learning tasks which they could structure and direct. These learning events were rarely offered. Further, when this preference difference is coupled with their constructs of rules and procedures, these students seem at-risk for failure in the typical classroom. It may be that some children enter school with a belief about learning which is more compatible with that which occurs within the classroom, and these children more readily adopt the classroom norms. Children who come to school with less compatible views may require more time to become familiar with the rules, and, perhaps more importantly, may require alternative teaching-learning structures. This evidence suggests that a single teaching-learning paradigm may be educationally ineffective for the diverse cultural, economic, and developmental levels of students.

Discussion

The utility of the person<->environment interaction model (Figure 1) at this time is heuristic in that the results of this study were a first probe of the components of the model. However, the findings of this research indicate the strength of the model as an investigative framework. An important proposition in this model was that the classroom situation and the beliefs which participants had about learning events influenced each other. Another major proposition was that various participant groups would differ in their beliefs about learning. The findings in this research supported the propositions. A marked difference between the beliefs which achieving and low-achieving children had about learning in school was found. Further, the findings indicated that in the primary teaching-learning paradigm the learning attributes which had importance for the low-achieving children were not prevalent in the classoom. These findings suggested cognitive dissonance between learning beliefs and learning events. From these findings, it appears that uniform learning environments prolong cognitive dissonance, and it is speculated that multiform learning environments are necessary for the diverse

learning needs of young children. The typology of personal constructs and the analysis of the classroom task and participant structures were instrumental in assessing these propositions.

The explanatory value of the typology is evident in the comparisons of the participant belief profiles. Parents considered learning activities in which children could work with other children to create, construct, and explore as important; the teachers' belief profiles did not include these constructs nor did they have near the level of complexity of the parents' typology. Another value of the typology was the evaluation of the constructs with the pictorial stimuli. This level of analysis indicated distinct differences between participant groups which were not uncovered by examining only the constructs. As an example, Hispanic children selected a wide range of pictures to represent both learning play and school tasks; whereas, the Anglo students selected scenes representing academic activities for school tasks and play scenes to represent learning play. Anglo students were also more concerned with teacher-directed activities and teaching-learning outcomes. None of these findings would have been apparent without the typological analysis.

Investiagating the structures of learning environments which enhance the social and cognitive development of young children and examining the role which cognitive dissonance plays in prompting or curtailing learning warrants further inquiry. Certainly the teaching-learning models which both Hunt (1975) and Marshall and Weinstein (1984) propose offer a framework to begin systematic inquiry of the structures required for differing developmental, conceptual, and learning style needs. The results of this study provide the foundation to examine the task and participant structues of learning events. Further, the methodology used to tap learning beliefs--pictorial stimuli and personal construct theory--provide a basis to learn more about cognitive dissonance. Such research would permit the evolution and development of the person<->environment interaction model.

The pictorial stimuli used in the interview tasks were completed by Randy Mott of Austin, Texas.

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